

Cleveland State University
College of Sciences and Health Professions
Bachelor of Science in Chemistry
(American Chemical Society Certified Track)

First Year

Fall Semester				Spring Semester			
	Credits	Major	Gen Ed		Credits	Major	Gen Ed
CHM 261/266 General Chemistry I/Lab	4	X	NS	CHM 262/267 General Chemistry II/Lab	4	X	NS
MTH 181 Calculus I	4	X	M/QL	MTH 182 Calculus II	4	X	M/QL
ENG 101 English I	3		W/C	ENG 102 English II	3		W/C
ASC 101 Introduction to University Life	1		INTRO	Arts & Humanities Elective**	3		A&H
Social Science Elective**	3		SS				
Semester Total	15			Semester Total	14		

Second Year

Fall Semester				Spring Semester			
	Credits	Major	Gen Ed		Credits	Major	Gen Ed
CHM 331/336 Organic Chemistry I/Lab	4	X		CHM 332/337 Organic Chemistry II/Lab	4	X	
MTH 281 Multivariable Calculus	4	X		PHY 242 University Physics II (or PHY 244)	5	X	NS
PHY 241 University Physics I (or PHY 243)	5	X	NS	CHM 301 Research Methods in Chemistry	2	X	WAC
General Elective*	3			US Diversity Elective	3		DIV
Semester Total	16			Semester Total	14		

Third Year

Fall Semester				Spring Semester			
	Credits	Major	Gen Ed		Credits	Major	Gen Ed
CHM 321 Physical Chemistry I	3	X		CHM 322 Physical Chemistry II	3	X	
CHM 311/316 Quantitative Analysis/Lab	5	X		CHM 412 Advanced Instrumental Analysis	3	X	
CHM 411 Instrumental Analysis	3	X		CHM 416 Instrumental Analysis Lab	3	X	WAC
CHM 426 Physical Chemistry Lab I	3	X	WAC	CHM 431 Advanced Organic Chemistry	2	X	
				CHM 427 Physical Chemistry Lab II	3	X	
				CHM Elective (300/400 level)	3	X	
Semester Total	14			Semester Total	17		

Fourth Year

Fall Semester				Spring Semester			
	Credits	Major	Gen Ed		Credits	Major	Gen Ed
CHM 402 Biochemistry I	3	X		CHM 403 Biochemistry II	3	X	
CHM 441 Inorganic Chemistry	3	X		CHM 446 Inorganic Chemistry Lab	2	X	
CHM 471 Faculty Colloquium	1	X		CHM 472 Student Colloquium	1	X	CAP
CHM Elective (300/400 level)	3	X		CHM 489 Senior Research	3	X	
General Elective*	2			African American Experience	3		DIV
Arts & Humanities Elective**	3		A&H	Social Science Elective**	3		SS
Apply for Spring graduation by the middle of this term							
Semester Total	15			Semester Total	15		
Degree Total (as listed in above sample): 120 (120 hours minimum required to earn degree)							

Assumptions: college-level readiness in MTH & ENG; no Foreign Language Deficiency

College/ Program Notes:

The plan above is a suggested guide to ensure that all General Education, College, University, and Major requirements are met within 4 years of study. Students may deviate from the suggested placement of Gen Ed courses, although the M/QL and W/C requirements should be completed during the first year of study.

*Electives ensure that a student accumulates the minimum credit hour totals needed for graduation. Students must have a **minimum of 120 total credit hours**, of which a **minimum of 42 credit hours** must be upper division (300 or 400-level courses). Depending upon other elective choices made, students may not need as many general electives as indicated above, or may need additional electives.

University Notes:

Gen Ed Key:	SS = Social Sciences (two courses from different departments)** A&H = Arts & Humanities (two courses from different departments)** DIV = Social Diversity (two courses; one US Diversity and one African American Experience) WAC/SPAC = Writing/Speaking Across the Curriculum (three courses, one in the major; C or better required) CAP = Capstone
INTRO = Introduction to University Life (one course) W/C = Writing/Composition (two courses; C or better required) M/QL = Mathematics/Quantitative Literacy (two courses) NS = Natural Sciences (two courses, one of which must have a lab)	** of the four total SS and A&H courses, one must be focused on Africa, Latin America, Asia or the Middle East (ALAAME)

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Cleveland State University
College of Sciences and Health Professions
Bachelor of Science in Chemistry
 (Pre-Professional Track)

First Year

Fall Semester				Spring Semester			
	Credits	Major	Gen Ed		Credits	Major	Gen Ed
CHM 261/266 General Chemistry I/Lab	4	X	NS	CHM 262/267 General Chemistry II/Lab	4	X	NS
BIO 200/201 Introductory Biology I/Lab	4	X	NS	BIO 202/203 Introductory Biology II/Lab	4	X	NS
ENG 101 English I	3		W/C	ENG 102 English II	3		W/C
ASC 101 Introduction to University Life	1		INTRO	MTH 181 Calculus I	4	X	M/QL
STA 147 Statistics	3	X	M/QL				
Semester Total	15			Semester Total	15		

Second Year

Fall Semester				Spring Semester			
	Credits	Major	Gen Ed		Credits	Major	Gen Ed
CHM 331/336 Organic Chemistry I/Lab	4	X		CHM 332/337 Organic Chemistry II/Lab	4	X	
Arts & Humanities Elective**	3		A&H	Social Science Elective**	3		SS
PHY 221 College Physics I	5	X	NS	PHY 222 College Physics II	5	X	NS
General elective*	2			CHM 301 Research Methods in Chemistry	2	X	WAC
Semester Total	14			Semester Total	14		

Third Year

Fall Semester				Spring Semester			
	Credits	Major	Gen Ed		Credits	Major	Gen Ed
CHM 320 Survey of Physical Chemistry	3	X		Social Science Elective**	3		SS
CHM 310 Survey of Analytical Chemistry	2	X		BIO 310/311 Genetics & Recitation	4	X	
CHM 315 Survey of Analytical Chemistry Lab	2	X		CHM 403 Biochemistry II	3	X	
CHM 402 Biochemistry I	3	X		Arts & Humanities Elective**	3		A&H
BIO 308/309 Cell Biology/Lab	4	X		Writing Across the Curriculum Elective	3		WAC
Semester Total	14			Semester Total	16		

Fourth Year

Fall Semester				Spring Semester			
	Credits	Major	Gen Ed		Credits	Major	Gen Ed
CHM 471 Faculty Colloquium	1	X		CHM 472 Student Colloquium	1	X	CAP
BIO 416/417 Microbiology/Lab	5	X		CHM/BIO Elective (300/400 level)	3	X	
CHM/BIO Elective (300/400 level)	3	X		African American Experience Elective	3		DIV
BIO 302/303 Animal Biology/Lab	4	X		US Diversity Elective	3		DIV
CHM/BIO Elective (300/400 level)	3	X		Writing Across the Curriculum Elective	3		WAC
				CHM/BIO Elective (300/400 level)	3	X	
Apply for Spring graduation by the middle of this term							
Semester Total	16			Semester Total	16		
Degree Total (as listed in above sample): 120 (120 hours minimum required to earn degree)							

Assumptions: college-level readiness in MTH & ENG; no Foreign Language Deficiency

College/ Program Notes:

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INTRO = Introduction to University Life (one course) W/C = Writing/Composition (two courses; C or better required) M/QL = Mathematics/Quantitative Literacy (two courses) NS = Natural Sciences (two courses, one of which must have a lab)	** of the four total SS and A&H courses, one must be focused on Africa, Latin America, Asia or the Middle East (ALAAME)

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Cleveland State University
College of Sciences and Health Professions
Bachelor of Science in Chemistry
 (Pre-Professional Track with Concentration in Pharmaceutical Science)

First Year

Fall Semester				Spring Semester			
	Credits	Major	Gen Ed		Credits	Major	Gen Ed
CHM 261/266 General Chemistry I/Lab	4	X	NS	CHM 262/267 General Chemistry II/Lab	4	X	NS
BIO 200/201 Introductory Biology I/Lab	4	X	NS	BIO 202/203 Introductory Biology II/Lab	4	X	NS
ENG 101 English I	3		W/C	ENG 102 English II	3		W/C
ASC 101 Introduction to University Life	1		INTRO	MTH 181 Calculus I	4	X	M/QL
STA 147 Statistics	3	X	M/QL				
Semester Total	15			Semester Total	15		

Second Year

Fall Semester				Spring Semester			
	Credits	Major	Gen Ed		Credits	Major	Gen Ed
CHM 331/336 Organic Chemistry I/Lab	4	X		CHM 332/337 Organic Chemistry II/Lab	4	X	
Social Science Elective**	3		SS	Arts & Humanities Elective**	3		A&H
PHY 221 College Physics I	5	X	NS	PHY 222 College Physics II	5	X	NS
US Diversity Elective	3		DIV	Writing Across the Curriculum Elective	3		WAC
Semester Total	15			Semester Total	15		

Third Year

Fall Semester				Spring Semester			
	Credits	Major	Gen Ed		Credits	Major	Gen Ed
CHM 341 Pharmacology I	3	X		CHM 342 Pharmacology II	3	X	
CHM 351 Medicinal Chemistry I	3	X		CHM 352 Medicinal Chemistry II	3	X	
CHM 310 Survey of Analytical Chemistry	2	X		BIO 310/311 Genetics and Recitation	4	X	
CHM 315 Survey of Analytical Chemistry Lab	2	X		CHM 403 Biochemistry II	3	X	
CHM 402 Biochemistry I	3	X					
Social Science Elective**	3		SS				
Semester Total	16			Semester Total	13		

Fourth Year

Fall Semester				Spring Semester			
	Credits	Major	Gen Ed		Credits	Major	Gen Ed
CHM 457 Pharmaceutical Analysis Lab	3	X		CHM 455 Biotechnology Techniques	3	X	
BIO 416/417 Microbiology/Lab	5	X		CHM 471 Faculty Colloquium	1	X	
African American Experience Elective	3		DIV	CHM 472 Student Colloquium	1	X	CAP
CHM/BIO Elective (300/400 level)^	3	X		CHM/BIO Elective (300/400 level)^	3	X	
Writing Across the Curriculum Elective	3		WAC	CHM/BIO Elective (300/400 level)^	3	X	
				Arts & Humanities Elective**	3		A&H
Apply for Spring graduation by the middle of this term							
Semester Total	17			Semester Total	14		
Degree Total (as listed in above sample): 120 (120 hours minimum required to earn degree)							

Assumptions: college-level readiness in MTH & ENG; no Foreign Language Deficiency

College/ Program Notes:

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*Electives ensure that a student accumulates the minimum credit hour totals needed for graduation. Students must have a **minimum of 120 total credit hours**, of which a **minimum of 42 credit hours** must be upper division (300 or 400-level courses). Depending upon other elective choices made, students may not need as many general electives as indicated above, or may need additional electives.

^One of the CHM/BIO 300/400 level electives **MUST** also be an approved WAC course in order to satisfy the WAC-in-major requirement.

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M/QL = Mathematics/Quantitative Literacy (two courses)	WAC/SPAC = Writing/Speaking Across the Curriculum (three courses, one in the major; C or better required)
NS = Natural Sciences (two courses, one of which must have a lab)	CAP = Capstone
	** of the four total SS and A&H courses, one must be focused on Africa, Latin America, Asia or the Middle East (ALAAME)

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Cleveland State University
College of Sciences and Health Professions
 Bachelor of Science in Chemistry
 CSUteach (license in Education)

First Year										
Fall Semester	Credits	Major	Minor	Gen Ed	Spring Semester	Credits	Major	Minor	Gen Ed	
ASC 101: Intro to University Life	1			Intro						
ENG 101: College Writing I	3			W/C	ENG 102: College Writing II	3			W/C	
CHM 261/266: General Chemistry I + Lab	4	x	x	NS	CHM 262/267: General Chemistry II + Lab	4	x	x	NS	
PSY 221: Adolescent Psychology	3		x	SS	BIO 200/201: Introductory Biology I + Lab	4	x	x	NS	
MTH 181: Calculus I	4	x	x	M/QL	MTH 182: Calculus II	4	x	x	M/QL	
<i>Semester Total</i>	<i>15</i>				<i>Semester Total</i>	<i>15</i>				

Second Year										
Fall Semester	Credits	Major	Minor	Gen Ed	Spring Semester	Credits	Major	Minor	Gen Ed	
EUT 201: Step 1: Inquiry Approaches to Teaching	1		x		EDB 242: Introduction to Education	3		x		
CHM 331/336: Organic Chemistry I + Lab	4	x	x		CHM 332/337: Organic Chemistry II + Lab	4	x			
BIO 202/203: Introductory Biology II + Lab	4	x	x	NS	BIO 304/305: Population Biology & Ecology + Lab	4	x	x		
EVS 206: Intro to Environmental Science	3	x	x	NS	MTH 147: Statistical Concepts & App	3	x	x	M/QL	
Arts & Humanities Elective (**ALAAME)	3			A&H	EDC 200: Div in Edu Settings	3		x	DIV	
African American Experience Elective	3			DIV						
<i>Semester Total</i>	<i>18</i>				<i>Semester Total</i>	<i>17</i>				

Third Year										
Fall Semester	Credits	Major	Minor	Gen Ed	Spring Semester	Credits	Major	Minor	Gen Ed	
EDB 302: Psychological Foundations of Education	3		x	WAC	EUT 305: Classroom Interactions	3		x		
CHM 310/315: Survey of Analytical Chem + lab	4	x	x		PHY 201: Astronomy: Stars & Galaxies	3	x	x	NS	
PHY 221: College Physics I	5	x	x	NS	PHY 222: College Physics II	5	x	x	NS	
GEO 100/101: Intro to Geology + Lab	4	x	x	NS	ESE 400: Introduction to Education	3		x		
Social Science Elective (**ALAAME)	3			SS	CHM 320: Survey of Physical Chemistry	3	x	x		
<i>Semester Total</i>	<i>19</i>				<i>Semester Total</i>	<i>17</i>				

Fourth Year										
Fall Semester	Credits	Major	Minor	Gen Ed	Spring Semester	Credits	Major	Minor	Gen Ed	
EUT 417: Project Based Instruction in Science	3		x		EST 499: CSUteach STEM Apprentice Teaching II	6		x		
EST 399: CSUteach STEM Apprentice Teaching I	1		x		EUT 210: Perspectives on Science & Math	3		x	A&H/WAC	
SCI 311: Research Methods	3		x	WAC	CHM 404: Environmental Chemistry	3	x	x		
CHM 402: Biochemistry	3	x			CHM 472: Student Colloquium	1	x		CAP/WAC	
PHY 470: Environmental Physics	3	x	x							
EDL 305: Content Area Literacy	3		x							
Apply for Spring graduation prior to Sep 9th										
<i>Semester Total</i>	<i>16</i>				<i>Semester Total</i>	<i>13</i>				

Degree Total: 130

Assumptions: college-level readiness in MTH & ENG; no Foreign Language Deficiency

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